

**REMARKS/ARGUMENTS**

Claims 2, 7, and 13 have been amended. Claim 8 has been canceled. Claims 1-7 and 9-20 are pending.

The Examiner objected to the disclosure requesting that "light-handed" should be replaced with --right-handed--. The disclosure has been amended accordingly

**Rejections**

The Examiner rejected claims 2 and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Claims 2 and 13 have been amended, as suggested by the Examiner.

The Examiner rejected claims 7 and 8 under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 7 has been amended to clearly define that said elastic oscillating plate is partially held in abutting contact with the restricting member in a static state thereof so as to increase said spring stiffness thereof, and moves away from said restricting member when the static pressure control mechanism is operated to substantially statically change said fluid pressure in said pressure receiving chamber so as to decrease said spring stiffness thereof. A basis for this amendment is found in paragraphs [0067]-[0068] of the specification. With this clarification, claim 8 has been canceled. Claim 7, as amended, meets the requirement under 35 U.S.C. 112, second paragraph.

Claims 1, 3-8, 14 and 16-18 are rejected under 35 U.S. C 102(b) being anticipated by Takeo et al. (JP #10-061715). This rejection is traversed for the following reasons. The applicants do not believe that Takeo et al. (Japanese publication #10-061715) has an English equivalent in USP 6,527,260. The applicant respectfully requests that the Examiner provides a translation of the Japanese publication to show that USP 6,527,260 is an English equivalent of Takeo et al. or withdraws the rejection.

To further prosecution of this case, the applicant's attorney will argue USP 6,527,260, but requests that the Examiner withdraw the rejection if the Examiner is unable to show that USP 6,527,260 is an English equivalent of Japanese publication #10-061715.

The present invention relates to a pneumatically operated active vibration damping device including an elastic oscillating plate 66 partially defining a pressure receiving chamber 72 on one side thereof and partially defining an oscillating air chamber 70 on the other side thereof, and actively oscillated by a periodic air pressure change in the oscillating air chamber 70 for actively control the pressure of the fluid in the pressure-receiving chamber.

Generally, the active vibration-damping device of this type is desired to exhibit a desired damping effect with respect to over a wide frequency range. To meet this end, a conventional active vibration-damping device, as disclosed in the cited reference USP 6,527,260 B2, for example, has an auxiliary fluid chamber 47 as well as an equilibrium chamber 17, which are partially defined by flexible diaphragms 18, 20, respectively, and which are connected to a pressure receiving chamber 11 through respective orifice passages 4, 5. By selectively permitting and inhibiting operations of the flexible diaphragm 47 and a rubber layer 45 depending upon frequencies of input vibrations, the conventional active vibration damping device can exhibit a desired damping effect by effecting appropriate orifice passages or an oscillation of the rubber layer 45 (see columns 19 and 20 of USP 6,527,260 B2, for example). However, this type of conventional active vibration damping device is disadvantageous in requiring a great number of components and a very sophisticated structure, leading a low manufacturing efficiency.

On the other hand, an active vibration-damping device constructed according to the present invention is capable of changing the spring stiffness of the elastic oscillating plate 66 so that a natural frequency of elastic oscillation of the elastic oscillating plate can be changed depending upon frequencies of input vibrations. Accordingly, the active vibration-damping device of the present invention can exhibit excellent active damping effect with respect to vibrations over a wide frequency range, with a single elastic oscillating plate 66 (see paragraphs [0014]-[0015])

In order to change the spring stiffness of the elastic oscillating plate, the active vibration damping device of the present invention includes a static pressure control mechanism for statically change the fluid pressure in the pressure receiving chamber 72 so as to induce a substantially static elastic deformation of the elastic oscillating plate.

More specifically, the static pressure control mechanism is operated to increase the spring stiffness of the elastic oscillating plate upon application of a relatively low frequency vibrational load so that a large amount of fluid is forced to flow through the first orifice passage, thereby exhibiting passive damping effect without adverse influence of the presence of the elastic oscillating plate. Upon application of a relatively high frequency vibrational load, on the other hand, the static pressure control mechanism is operated to suitably change the spring stiffness of the elastic oscillating plate, depending upon a frequency of the input load, for thereby exhibiting active damping effect with respect to vibrations ranging a plurality of frequency bands (see paragraphs [0013]-[0018]).

Regarding claim 1, USP 6,527,260 fails to disclose a static pressure control mechanism. The Examiner stated that members 25 and 19 in Fig. 4 form a static pressure control mechanism. The Examiner asserts that column 19, line 55 to column 20, line 8 discloses a static pressure control mechanism 25, 19 adapted to substantially statically change the fluid pressure in the pressure receiving chamber 11, so as to induce a substantially static elastic deformation of the elastic oscillating plate for changing a spring stiffness of the elastic oscillating plate.

The vibration damping device disclosed in Fig. 4 of USP 6,527,260 includes a film-shaped diaphragm 20 partitioning the liquid chamber 17 and the air chamber 21 (see column 18, lines 17-19). The diaphragm 20 is flexible to permits a volumetric change of the liquid chamber 17, and is always exposed to the atmosphere, as is apparent from the cross-sectional view of the aperture at the bottom of the air chamber 21 near the number 21 in Fig. 4. Since the air chamber 21 is filled with the atmosphere, an atmospheric pressure is always exerted on one side of the diaphragm 20. Therefore, a static pressure change in the liquid chamber 17 is immediately absorbed by the displacement of the diaphragm 20, and is adjusted to the atmospheric pressure to balance the pressures in both sides of the diaphragm 17. Further, the liquid chamber 17 is connected to the liquid chambers 11 and 47 through the orifice passages 15 and 4. Therefore, these chambers 11, 47 and 17 cooperate to form a single chamber, and are held in a constant static pressure, which is equal to atmospheric pressure. Like the liquid chamber 17, the static pressure in the liquid chamber 11 is statically held in the atmospheric pressure due to the flexible diaphragm 17 always exposed to the atmosphere. This phenomenon is clearly understood by Pascal's principle. According

to the structure of the vibration damping device of Fig. 4 of USP 6,527,260, it is impossible to statically change a fluid pressure in the liquid chamber 11, since presence of the diaphragm 17 always exposed to the atmosphere keeps the static pressure at atmospheric pressure. That is, USP 6,527,260 fails to teach the static pressure regulating system, and accordingly, the spring stiffness of the rubber layer 45 cannot be statically changed due to the static fluid pressure change in the pressure-receiving chamber 11. Therefore, USP 6,527,260 does not disclose a static pressure control mechanism that is able to change the fluid pressure in the pressure receiving chamber. For the above reasons, claim 1 is not anticipated by USP 6,527,260.

The Examiner rejected claims 9-12 under 35 U.S.C. 103 (a) as being unpatentable over Takeo et al. (Japanese publication #10-061715) in view of Muramatsu (USP 5,170,998).

The Examiner rejected claims 19 and 20 under 35 U.S.C. 103 (a) as being unpatentable over Takeo et al. (Japanese publication #10-061715) in view of Muramatsu (EP 0936376A2).

Claims 3-7, 9-11, 14, and 16-20 each depend either directly or indirectly on the independent claim, and are therefore respectfully submitted to be patentable over the art of record for at least the reasons set forth above with respect to the independent claims. Additionally, these dependent claims require additional elements that when taken in the context of the claimed invention, further patentably distinguish the art of record. For at least these reasons, claims 3-7, 9-11, 14, and 16-20, as amended, are not anticipated or made obvious by Takeo et al. (Japanese publication #10-061715) in view of Muramatsu (USP 5,170,998) and Muramatsu (EP 0936376A2).

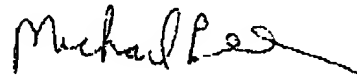
The Examiner did not rejected claims 2, 13, 15 as being unpatentable over any of the cited references. It should be noted that claim 2 further recites that the static pressure control mechanism is operated to adjust the spring stiffness of the elastic oscillating plate such that a value of a natural frequency of the elastic oscillating plate increases as a value of the frequency of the vibration to be damped increases. Therefore, claims 2, 13, and 15 should be allowed.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a

telephone conference would expedite the prosecution of this application, the undersigned can be reached at (831) 655-2300.

Respectfully submitted,

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